

accepted as a criterion for the differentiation of several of the stellar groups.

Approached with the above reservations the volume is certainly attractive, and the only serious omission appears to be the complete absence of references to sources of the information, so that a reader desirous of further study on any point is left entirely unaided.

The plates chosen for illustrating the volume are excellent and beautifully reproduced. The usefulness of many of them to the beginner will be somewhat impaired on account of the orientation letters being entirely omitted, and in several cases the plates are oriented differently from the majority, thereby leading to further confusion. Illustrations of many old portraits and ancient impressions of the solar and stellar systems are included, which will be the more interesting in that they are not easily available elsewhere. The index, well planned in general, contains many useless references, in some cases quoting names which, when referred to, prove to be merely names with no record of work done or other points of interest.

It will thus be evident that opinions on the volume will probably diverge along two lines; to the more advanced reader it is likely to appear superficial, as only touching with note-like brevity a few of the many chapters of the science; to the reader merely interested in astronomical development, however, it should appeal as a popular and very attractive account of many interesting sections of nature-study.

VON RICHTHOFEN'S CHINESE DIARIES.

Ferdinand von Richthofen's Tagebücher aus China.
Ausgewählt und herausgegeben von E. Tiessen.
Two vols., illustrated. Vol. i., pp. xv+588; vol. ii.,
pp. iv+375. (Berlin: Dietrich Reimer, 1907.)
Price 20 marks.

WHEN Ferdinand von Richthofen's life was ended his great work on China still remained unfinished. The third volume was not only unwritten, but had become unwritable, for, besides a description of southern China, it was intended to contain an account of the culture, civilisation, and organisation of China as a whole, and, apart from the magnitude of the subject, the complete alteration in the conditions of this "unchanging" country since the date of his travels had made much of his observation and experience inapplicable to the existing state of affairs. Besides the missing volume of his great work, von Richthofen also left unfinished the popular account of his travels, a work which he regarded as a duty owed to his fellow-men by every traveller in unexplored or little-known countries, and had, indeed, nearly half completed when the publication of his great work was assured, and monopolised the whole of the time and energy which was not devoted to his duties as professor. To fill in, so far as was possible, these gaps in his published work, and to meet a generally felt wish among Baron von Richthofen's old students and friends, Herr Tiessen, with rare skill, has compounded from von Richthofen's unpublished manuscripts, his diaries, and his letters home, one of the most interesting and enlightening books of travel which have been published.

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On August 3, 1868, von Richthofen left San Francisco with the deliberate intention of undertaking a geological examination of China. His hope was that if he could manage to spend a year in that country he would be able, by the importance of the results, to interest the Government and obtain from it the assistance needful for the prosecution of his purpose. This first year of work was provided for by the enlightened liberality of Californian capitalists, who foresaw the practical importance of a scientific investigation of the resources of China, and, through the Bank of California, provided funds for an expedition. Arriving in China, von Richthofen was soon disillusioned of any hope of assistance from the Government, but nevertheless, and in spite of every discouragement, determined to pursue steadfastly his resolve. After some short excursions, mostly devoted to the examination of real or reputed discoveries of coal or ores, his first important journey was the descent of the Yangtse and the examination of its banks from Hankow to its mouth. This journey was an important one in more than one way, and in none more so than in the acquisition of Paul Splingaert, a Belgian, who had acquired an intimate colloquial knowledge of the Chinese language and an insight into the character and habits of thought of the Chinese people. The value of his services appears repeatedly throughout the book, and the importance of the results of von Richthofen's travels is very largely due to the fortunate combination of the man who knew how to collect and utilise information with the man who was able to obtain it. On this journey, too, von Richthofen made the first of those observations on the loess which led to the development of his well-known and now generally accepted theory of the origin of that remarkable formation; between Nankin and Chin-kiang he found remains of Helix in the loess near the hill of Fangshan, and remarks that this discovery is inconsistent with the theories of Pümpelly, who regarded the loess as a fresh-water, or of Kingsmill, who looked upon it as a marine deposit.

The next journey took him through the province of Shantung, where he discovered large and important coalfields, and was the first to recognise the value of Kiao-chau as a port of access to, and an outlet for, the mineral wealth of the province, a discovery of which the German Government took advantage at a later period. After a long journey through Mongolia to Peking and back to Shanghai, he accepted a proposal from the Shanghai Chamber of Commerce for an exploration of the interior of China; and so, in spite of the failure of his hopes of Government support, von Richthofen found himself in a position to carry out the design with which he left America, and on January 1, 1870, set out from Canton on the first of his two great journeys through the heart of the Chinese Empire, which ended with his return on May 21, 1872, to Shanghai; whence, after a stay of five months, devoted to preparing a report on his travels for the Shanghai Chamber of Commerce, he returned to his native land after an absence of just over twelve and a half years.

These are the travels of which we are given a simple and straightforward account devoid of all scientific technicalities. Those who wish to make use of von

Richthofen's scientific work must look elsewhere; but in this book they will find, not only an interesting account of his journeys, but a marvellous revelation of the real China. On almost every page of the narrative stand prominent, not merely the sources of China's weakness, but also the enormous latent power of the country, and there is borne in upon one an almost oppressive feeling that a China awakened, reformed, and patriotic could set the world at nought, and a China ambitious besides would be a real yellow peril. But all those who knew the late Baron F. von Richthofen will value this book less for its description of China than as a picture of its author; on every page of the narrative his simplicity, honesty, and nobility of character stand forth, his steadfastness in pursuing the course he had set before him in spite of discouragement, the intrepidity and tact which extricated him from difficult and dangerous situations, when set upon and mobbed by the colliers in Shantung, when he visited the bitterly anti-foreign "university" of Yolu-shan, and especially in the extremely critical occurrence which put an end to his further travels, all stamp him as a true representative of that aristocracy, not merely of birth, but of intellect and character, which by common consent raises some individuals far above the level of the great mass of their fellow beings. No more acceptable or worthy memorial of their author could well have been contrived than these two unpretentious volumes.

THE GENERA OF FLOWERING PLANTS.

Genera Siphonogamarum ad Systema Englerianum conscripta. By Dr. K. W. von Dalla Torre et Dr. H. Harms. (Leipzig: W. Engelmann, 1900-1907.)

THE completion of the "*Genera Siphonogamarum*," by Drs. K. W. von Dalla Torre and H. Harms, will have been welcomed by all students of the taxonomy of siphonogams—or, as we are still used to say, phanerogams—and no doubt also by many other botanists. Invaluable as Engler and Prantl's "*Natürliche Pflanzenfamilien*" is as the embodiment of the most recent researches in the systematic botany of phanerogams, it suffers from one serious omission, the lack of all references to the original descriptions of the genera and their subdivisions. To fill that gap was the primary object of the publication of the "*Genera Siphonogamarum*." At the same time it was intended to make the synonymy of the genera as complete as possible, and give a comprehensive description, on the one hand, of their disposition within the families and the Englerian system generally, and, on the other, of their subdivisions. Lastly, the work should serve as a catalogue for those botanical collections which are arranged after the "*Natürliche Pflanzenfamilien*"; and there is no doubt that in most respects the problem has been solved in an admirable way.

The book consists of two parts. The first part (pp. 1-637) is headed by an "*Enumeratio Familiarum Siphonogamarum*," and contains the disposition of the systematic units above the rank of species, whilst the second (pp. 638-921) is taken up by an "Index

Nominum." The basis of the whole work is, as indicated in the title, Engler and Prantl's "*Natürliche Pflanzenfamilien*"; but where the disposition or the conception of the units has been superseded by more recent monographs, or otherwise proved untenable, due notice is taken of the changes entailed thereby. The decision whether a proposed alteration was to be adopted or not must frequently have been a very difficult and delicate task for the authors; but, on the whole, they seem to have acted with much tact and sound judgment. The genera are given their successive numbers in the system in heavy type, whilst their places within the families are indicated by figures in light type. The references in the index are to both sets of numbers, which makes the index very handy as a collection catalogue. All citations are accompanied by the dates of publication, so that the settlement of questions of priority is greatly facilitated. The reference to the original publication is followed by references to Endlicher's "*Genera Plantarum*," Bentham and Hooker's "*Genera Plantarum*," and Engler and Prantl's "*Natürliche Pflanzenfamilien*," and by a note containing the approximate number of species known, and a very concise indication of the geographical distribution. Then the synonyms are enumerated in their chronological sequence, each starting a fresh line, and lastly we are given the disposition of the subdivisions of the genus with the corresponding synonyms.

Frequent use of the book has revealed here and there errors, almost exclusively in the reference figures, but not more than one has to be prepared for, in a work that contains almost 43,000 names, with as many references. There is, however, one weak point which cannot be passed without criticism. As the references to the two "*Genera Plantarum*" of Endlicher and of Bentham and Hooker stand, they suggest that a given genus admitted by the authors of the "*Genera Siphonogamarum*" is also admitted as such by those earlier authors, whilst in fact it merely means that they have dealt with it in some way on the page quoted, and, indeed, frequently stated that they do not consider the genus as tenable. For instance, under *Ligularia* we find "B.H. II., 449," but if we turn to p. 449 of vol. ii. of Bentham and Hooker's "*Genera Plantarum*," we find that *Ligularia* is there actually reduced to *Senecio*. Thus the impression is created that the conception which the authors of the "*Genera Siphonogamarum*" have of *Ligularia* is supported by the authors of "*Genera Plantarum*," whilst just the opposite is the case. The addition of "*sub Senecione*" in the case quoted would have been sufficient to make that clear. This is, however, practically the only serious blemish in a work which must have taxed the judgment and patience of the authors to the utmost.

The execution of the typography in a book like the present is, of course, of paramount importance, and it may be stated at once that it leaves nothing to desire, with the possible exception that the type used in the "Index" for the numbers of the genera admitted might have been a little heavier. Inconvenient is the throwing together in the index of the letters I and J,